WATERHOUSE, EDWARD J.

Communication by Braille
and Recordings.

HV1669
.W292
1953

AMERICAN FOUNDATION
FOR THE BLIND INC.

HV1669 c.1
W293

COMMUNICATION BY BRAILLE AND RECORDINGS

Presented at the Boston Meeting of the
American Association for the Advancement of Science
December 28, 1953
by
Edward J. Waterhouse, Director of
Perkins Institution and Massachusetts School for the Blind
Watertown, Massachusetts

Although most reading is performed by the use of sight, blind people are able to accomplish it by the substitution of fingers or ears for eyes. Historically, the use of fingers as reading agents for the blind preceded the use of ears by over a century. A variety of tangible types from various parts of the world, taken from the Blindiana Museum of Perkins Institution, are on display here today. These fall into two classifications. The first, which has been obsolete for fifty years, consists of a variety of raised letters shaped more or less like print ones, usually a quarter of an inch or more in size, and modified in some way to make them easier for the finger to distinguish. An extreme modification, known as Moon Type after its inventor, reduces print letters to a series of shapes similar to the old pothooks used in teaching penmanship a generation ago, but still retaining in many cases the general appearance of their print counterparts.

The second group of finger reading materials are punctiform. By far the most used and most famous of these is Braille, named for its blind inventor who introduced it in the 1820's into a school for blind children in Paris where he was a teacher. Although competitive systems have been introduced since, some of which flourished widely for several decades, the code Louis Braille invented is still essentially the one in use today. As its use is being introduced into almost every country in the world, it is probably the only form of "printing" which can claim to be universal.

Each character or cell in braille consists of two vertical rows of three dots each. The sixty-three possible combinations of these six dots are used to indicate individual letters, important common words such as "and" or "the", and various punctuation signs. The use of certain of these dots as prefixes to other combinations provides a large number of contractions so that braille can be reduced to a shorthand.

In spite of these contractions, however, braille is bulky. The ratio in size of a braille book to its print counterpart depends on many variables in the size of type and thickness of paper used in the print book. These factors are relatively uniform in braille. An example of a book written in the two media is shown here on the desk.

Bulk is the chief objection to braille. It is not, actually, very costly to produce a book in this way. The braille text is embossed by means of a specially designed machine onto zinc plates, and from these transferred to paper on relatively simple "printing " presses, both sides of the paper being used. The costliness lies in the fact that runs are comparatively short. There is never a demand for very many copies of any one title. Here in the United States most books for the adult blind are provided by the Library of Congress, and distributed through about twenty-six regional libraries scattered throughout the country. A run of twenty-six copies of an average novel would cost between eight hundred and a thousand dollars, and I do not know of any print publisher who would be willing to produce a small run of that size for anything like that price.

Text books for students are also provided by Federal funds, and produced at the largest braille printing press in the world, the American Printing House for the Blind, at Louisville, Kentucky. The number of copies embossed varies, of course,

with the needs, but still is small compared with print equivalents.

Bulk is a serious handicap because of the extreme cost of storage and handling. There are many ways in which this bulk could be reduced, at least in theory. One way which was attempted in Europe in the 1930's is to store the braille material on microfilm which when fed into a special machine embosses the book right as the reader needs it. Magnetic tape has also been suggested for storing braille. The only machine in existence, to my knowledge, which translates a compressed form of braille into usable braille is the reading machine which has been developed by the International Business Machines Corporation, under the influence of Mr. Thomas J. Watson, the Corporation's President. Mr. John N. Wheeler, who is one of IBM's engineers from New York, is here today with this machine, and as soon as I have concluded my remarks, he will demonstrate it for us. The saving in bulk is at least sixty-six per cent, and perhaps could be increased to ninety per cent.

Sound recording, of course, came into the service of the blind at a much later date. Although Thomas Edison noted that books recorded this way would be of great advantage to blind people, it was not until the late 1920's that a serious program was attempted. As with braille books, talking books are also financed by the Library of Congress and distributed through regional libraries. All talking books used in New England are distributed through our library at Perkins Institution. Long before lp records became popular, the blind were listening on 33 1/3 rpm machines. A considerable library has been built up in the United States, and a smaller one in England during the past quarter century, and new titles are being added all the time. Both the books and the machines for playing them are available without any charge to the blind in the United States, and free mailing, which is also extended to braille books, is provided by the United States Post Office.

However, the same problem of bulk which is a hindrance with braille is present with the talking book. Research is going on in the United States, Germany, and Britian, with the hope that something lighter and less bulky than the standard plastic disc may be made available. I do not need to enumerate the many possibilities. In America research is concentrating on thinner and lighter discs with more grooves to the inch and fewer revolutions to the minute. In England magnetic wire is being considered. In Germany the embossing of film has been developed, and shows considerable promise because of the very small bulk involved and the reputedly low cost of reproduction. This research is being coordinated, and it is expected that within several years a decision will be made as to what is the best technique for the blind to develop universally. We are not too much concerned with special research in this field, as a great deal is being done for the seeing by commercial companies. The blind owe a great deal to work developed for the seeing. Incidentally, in the other direction, the seeing are now beginning to use more and more recorded literary material, following the example set by the blind. A recent recording of works by living writers, selling for one hundred dollars a set, is undoubtedly a forerunner of bigger things to come.

Perhaps one of the most helpful developments is that of compressed speech, a sample of which I am going to play you in a few minutes. In this method, as much as half of the sounds spoken are not recorded at all, so when speech is reproduced, it requires only a fraction of the original time, speeding up communication without increasing pitch. A fifty per cent time reduction does produce some problems as you can see, but twenty-five per cent is quite intelligible, and it is believed that with a little practice the fifty per cent may be usable. Even a twenty-five per cent reduction in the time required to read material is something worth having.

It should be noted in passing that although the use of braille in this country dropped off very considerably after the talking book was introduced, the decline did not continue, and the use of braille in America now remains about uniform. Probably more braille is being used in the world today than ever before because of the increasing use overseas. Consequently, we are interested in any new development which will enable us to produce braille more compactly, ~~more inexpensively,~~ and more expeditiously.

....

JAN 14 1

HV1669 c.1
W292
Waterhouse, Edward J.
Communication by braille
and recordings. (1953)

Date Due			